

CLAIMS

1. A therapeutic medical device, comprising:
 - a) an energy delivering catheter;
 - b) an illuminator which projects energy through the catheter toward a tissue surface;
 - c) a collecting device positioned within the catheter which receives reflected energy; and
 - d) a detector for at least one wavelength of the reflected energy as an indicator of the catheter's position.
2. The therapeutic medical device of claim 1, wherein the illuminator projects laser radiation.
3. The therapeutic medical device of claim 1, wherein the illuminator projects green light.
4. The therapeutic medical device of claim 1, wherein the illuminator projects both green and red light.
5. The therapeutic medical device of claim 1, wherein the illuminator projects white light.
6. The therapeutic medical device of claim 1, wherein the illuminator comprises an optical fiber.
7. The therapeutic medical device of claim 6, wherein the optical fiber is also a conduit for therapeutic radiation.
8. The therapeutic medical device of claim 7, wherein the optical fiber is in communication with a laser source, an arc lamp, an LED, or a tungsten filament bulb.
9. The therapeutic medical device of claim 1, wherein the illuminator and collecting device are the same, such that projected energy and reflected energy can be processed by the same device.

10. The therapeutic medical device of claim 1, wherein the illuminator projects synchronous light and therapeutic energy.
11. The therapeutic medical device of claim 10, wherein the illuminator and collecting device are the same, such that projected energy and reflected energy can be processed by the same device.
12. The therapeutic medical device of claim 1, wherein the detector is a spectrometer.
13. The therapeutic medical device of claim 12, wherein the spectrometer is in communication with a computer that indicates changes in intensity of the reflected energy as the sensor is contacted with the tissue surface.
14. The therapeutic medical device of claim 13, wherein the computer analyzes the intensity of reflected green light.
15. The therapeutic medical device of claim 13, wherein the computer analyzes a ratio of reflected green light and reflected red light.
16. The therapeutic medical device of claim 1, further comprising a sheath that is located about an outer surface of an balloon member attached to the distal end of the catheter and covers approximately a third to a distal most portion of the balloon member where a point of contact with tissue occurs.
17. The therapeutic medical device of claim 16, wherein the sheath comprises a polyethylene terephthalate polymer, which contains light scattering particles.

18. A method for determining contact with an intraluminal tissue surface, comprising the steps of:

a) positioning an intraluminal contact sensor toward the intraluminal tissue surface, wherein the contact sensor comprises:

an energy delivering catheter;

an illuminator that projects energy through the catheter toward the intraluminal tissue surface;

a collecting device positioned within the catheter which receives reflected energy; and

a detector for measuring at least one wavelength of the reflected energy;

b) projecting energy toward the intraluminal tissue surface;

c) collecting reflected energy from the intraluminal tissue surface or body fluid; and

d) analyzing the changes in reflected energy to indicate the catheter's position.

19. The method of claim 18, wherein the energy is green light.

20. The method of claim 18, wherein the energy is green and red light.

21. The method of claim 18, wherein the energy is white light.

22. The method of claim 18, wherein the energy is both for location and is therapeutic.

23. The method of claim 22, wherein the therapeutic energy is phototherapeutic.